

Cumulative Author Index of Volumes A52, A53 and A54

Åbro, E., 54, 493
 Ahn, Y., 52, 92
 Alizadeh-Taheri, B., 54, 606
 Ancey, P., 53, 304
 Andle, J.C., 53, 243
 Annaka, N., 54, 695
 Anthamatten, O., 52, 46
 Baert, K., 53, 325, 423
 Baettig, R., 52, 46
 Barbier, D., 54, 700
 Bart, S.F., 54, 472
 Bay, J., 53, 232
 Becker, H., 54, 618
 Benecke, W., 54, 574
 Benítez, M.A., 54, 718
 Benrakkad, M.S., 54, 718
 Berenschot, J.W., 54, 669
 Bergveld, P., 52, 18; 54, 499
 Bernstein, R.W., 53, 349; 54, 728
 Besse, P.-A., 52, 114
 Bexell, M., 53, 428
 Bhansali, S., 52, 126
 Bianco, A., 52, 161
 Bienstman, J., 52, 179
 Bier, W., 53, 361
 Bildstein, P., 53, 304
 Binder, J., 54, 574
 Blochwitz, T., 54, 632
 Blückert, A., 52, 81
 Bossche, A., 52, 151; 53, 299
 Bouwstra, S., 52, 25, 121; 53,
 232
 Brody, J.P., 54, 704
 Brooks, K.G., 54, 530
 Brown, J., 52, 132
 Bu, J.-U., 54, 468
 Bucur, R.V., 53, 371
 Budde, W., 54, 443, 601
 Burger, G.J., 54, 669
 Burns, D.W., 52, 92; 53, 249
 Burriesci, D.L., 53, 311
 Burstein, A., 52, 193
 Buser, R.A., 53, 410
 Cabuz, C., 54, 646
 Carlsson, J.O., 53, 371
 Chan, P.C.H., 54, 482, 636
 Chau, K.H.-L., 54, 472
 Chen, K., 54, 741
 Chen, Y.-M., 53, 273
 Cheshmehdoost, A., 52, 99
 Cheung, P.W., 54, 482
 Chévrier, J.B., 53, 325
 Childress, J.R., 53, 256
 Cho, Y.-H., 54, 579
 Chou, B.C.S., 53, 273
 Chu, P.B., 52, 216
 Chu, Z., 54, 505
 Chun, K., 52, 145
 Chung, S.-W., 54, 464
 Ciarlo, D.R., 54, 755
 Cohen, S., 54, 765
 Comer, J., 54, 777
 Cutkosky, M.R., 54, 511
 Dahint, R., 53, 243
 Damjanovic, D., 53, 353
 Daneman, M., 52, 76
 Davidson, J.L., 54, 724
 de Bree, H.-E., 54, 552
 De Cicco, G., 52, 161
 De Cooman, M., 53, 261
 Demartin, M., 53, 353
 De Rooij, N.F., 52, 46; 53, 364;
 54, 530
 De Vries, P.H.S., 52, 203
 Dirac, H., 52, 121
 Doleschal, W., 54, 536
 Douguchi, Y., 53, 223
 Dutoit, M., 52, 156
 Earles, T., 53, 386
 Edo, M., 54, 733
 Eichner, D., 52, 140
 Elwenspoek, M., 54, 552
 Eng, T.T.H., 54, 679
 Enoksson, P., 54, 558
 Ensell, G., 53, 345
 Ericson, F., 54, 674
 Esashi, M., 54, 646
 Esteve, J., 54, 718
 Feit, K., 53, 434
 Field, L.A., 53, 311
 Fischer, M., 52, 140
 Fluitman, J.H.J., 54, 669
 Folkmer, B., 54, 488
 Fonseca, L., 54, 718
 Forster, F.K., 54, 704
 Fricke, J., 54, 651
 Fujita, T., 54, 568
 Fung, S.K.H., 54, 482
 Gabrielson, T.B., 53, 227
 Gagnaire, H., 54, 589
 Gardner, J.W., 52, 86
 Gehner, A., 54, 536
 Gerlach, G., 53, 330; 54, 632
 Giehler, E., 53, 304
 Go, J.S., 54, 579
 Göttert, J., 53, 416
 Gottfried-Gottfried, R., 54, 443;
 601
 Greenwood, J., 52, 86
 Greitmann, G., 53, 410
 Grétillat, M.A., 52, 46
 Grundke, W., 54, 536
 Grunze, M., 53, 243
 Gschwind, M., 53, 304
 Guber, A.E., 53, 361
 Guckel, H., 52, 92; 53, 249, 386
 Guérin, L., 52, 156
 Gusmano, G., 52, 161
 Halene, C., 53, 434
 Han, B.-S., 54, 464
 Han, J., 54, 594
 Han, M.-K., 54, 641
 Hanneborg, A., 54, 728
 Hansen, O., 53, 232
 Haronian, D., 53, 288
 Hatfield, J.V., 54, 777
 Hattori, T., 54, 760
 He, G., 54, 741
 Hecke, M., 53, 361
 Hein, S., 54, 547
 Herb, W.R., 52, 92; 53, 249
 Hicks, P.J., 54, 777
 Hierold, C., 54, 659
 Hirai, Y., 53, 223
 Hök, B., 52, 81, 211
 Holleck, H., 53, 434
 Honer, K.A., 52, 12
 Horning, R.D., 53, 249
 Howe, R.T., 54, 472
 Hübel, A., 54, 601
 Huber, B., 53, 284
 Huijsing, J.H., 52, 198
 Hunklinger, S., 54, 618
 Ichikawa, N., 54, 714
 Idogaki, T., 54, 760
 Ikeda, M., 53, 223
 Imai, S., 54, 669
 Ishida, M., 53, 267, 340
 Itoh, H., 54, 622
 Itoh, T., 54, 477
 Iwakiri, M., 53, 267
 Jaecklin, V.P., 52, 46
 Jähne, R., 54, 443, 601
 Jansen, H., 54, 552
 Johansen, G.A., 54, 493
 Johansen, I.-R., 53, 349
 Johansson, S., 53, 428
 Jones, B.E., 52, 99
 Josse, F., 53, 243
 Judy, J.W., 53, 392
 Jun, Y.-S., 54, 468
 Kádár, Z., 52, 151; 53, 299
 Kadota, M., 53, 223
 Kahrizi, M., 53, 278
 Kaiser, W.J., 52, 193; 53, 227
 Kälvesten, E., 52, 51
 Kan, S.C., 54, 679
 Kane, B.J., 54, 511
 Kang, J.-W., 52, 92
 Kang, U.-S., 54, 641
 Kang, W.P., 54, 724
 Kasemo, B., 54, 448
 Kawahito, S., 54, 612
 Kemp, C.J., 54, 523
 Kenny, T.W., 53, 227
 Kerns, D.V., 54, 724
 Kersjes, R., 54, 563
 Kholkin, A., 53, 398
 Kiang, M.-H., 52, 76
 Killat, D., 52, 175
 Kim, C.-J., 52, 145
 Kim, H., 53, 340
 Kim, I.-S., 54, 468
 Kim, S.-T., 54, 468
 Kim, T.-Y., 54, 468
 Kim, Y.-K., 54, 464
 Kimura, T., 53, 340
 Kindt, W., 53, 299
 Kinser, D.L., 54, 724
 Kirsten, M., 54, 674
 Kittilä, G., 54, 728
 Klaassen, E., 54, 709
 Klaassen, E.H., 52, 33, 132
 Kleimann, P., 54, 700
 Klein, J., 53, 386
 Knight, R.T., 54, 606
 Ko, P.K., 54, 636
 Kobayashi, A., 54, 457
 Kobayashi, T., 54, 646
 Kohashi, M., 54, 622
 Kohl, M., 53, 416, 434
 Köhler, U., 53, 361
 Kohli, M., 53, 398
 Koide, A., 54, 714
 Konishi, Y., 54, 568

Kornilov, V.M., **53**, 319
 Korthorst, T., **54**, 552
 Kovacs, G.T.A., **52**, 12, 33, 132, 187; **54**, 511
 Kozlowski, F., **53**, 284; **54**, 659
 Krause, P., **53**, 405
 Kreutzer, M., **54**, 746
 Krulevitch, P.A., **54**, 755
 Kruusing, A., **52**, 59
 Kück, H., **54**, 443, 536, 601
 Kwak, B.M., **54**, 579
 Lachinov, A.N., **53**, 319
 Lal, A., **54**, 542
 Lammerink, T.S.J., **54**, 552, 669
 Lander, R., **54**, 594
 Landsberger, L.M., **53**, 278
 Lang, W., **53**, 284; **54**, 488, 659
 Lange, P., **54**, 674
 Lapadatu, D., **53**, 261
 Lau, J., **54**, 636
 Lau, K.Y., **52**, 76
 Le Berre, M., **54**, 700
 Lee, A.P., **54**, 755
 Lee, J.D., **52**, 145
 Lee, S.-K., **54**, 641
 Lee, S.S., **52**, 41
 Lehew, S., **54**, 755
 Leistiko, O., **52**, 25
 Lerch, Ph., **54**, 530
 Leussink, P., **54**, 552
 Lewis, S.R., **54**, 472
 Li, Q., **54**, 724
 Liebscher, F., **54**, 563
 Lindmair, N., **54**, 659
 Lisec, T., **54**, 746
 Löchel, B., **54**, 663
 Löfdahl, L., **52**, 51
 Logan, J., **52**, 132; **54**, 709
 Lomas, D.G., **54**, 777
 Lorenz, H., **53**, 364
 Luginbuhl, Ph., **54**, 530
 Luthier, R., **53**, 364
 MacDonald, N.C., **52**, 65; **53**, 288
 Maciossek, A., **54**, 663
 Mader, G., **54**, 574
 Maeda, M., **54**, 568
 Maeder, T., **53**, 398
 Maenaka, K., **54**, 568
 Maluf, N.I., **52**, 12, 132, 187; **54**, 709
 Manoli, Y., **54**, 563
 Marcheselli, R.G., **54**, 472
 Martinez, E., **52**, 12
 Marxer, C., **52**, 46
 Masoero, A., **52**, 161
 Masure, E., **53**, 423
 Matsumoto, Y., **53**, 267
 McCulley, W., **52**, 132
 Mecea, V.M., **53**, 371
 Melcher, R., **54**, 536
 Menz, W., **54**, 785
 Mertens, R., **53**, 325
 Middelhoek, S., **52**, 203; **54**, 505
 Mikli, V., **52**, 59

Minami, K., **54**, 646
 Mitchell, A.W., **53**, 237
 Mitsui, H., **54**, 695
 Mizuno, J., **54**, 646
 Mohr, J., **53**, 416
 Mokwa, W., **54**, 563
 Mollinger, J., **52**, 151; **53**, 299
 Montesperelli, G., **52**, 161
 Morante, J.R., **54**, 674, 718
 Morten, B., **52**, 161
 Müllenborn, M., **52**, 121
 Müller, M., **54**, 601
 Muller, R.S., **52**, 76; **53**, 392
 Muntz, E.P., **54**, 765
 Muralt, P., **53**, 398
 Nagasawa, H., **54**, 695
 Nägele, M., **52**, 140
 Nakagomi, S., **52**, 110
 Nakamura, K., **54**, 626
 Nakamura, T., **53**, 267, 340
 Nakazawa, H., **54**, 733
 Nakazawa, T., **54**, 714
 Nakladal, A., **53**, 330
 Nanto, H., **53**, 223
 Nasu, S., **53**, 223
 Neda, T., **54**, 626
 Nelson, P.R., **52**, 216
 Nese, M., **53**, 349; **54**, 728
 Nguyen, C.T., **54**, 636
 Nguyen Van Dau, F., **53**, 256
 Ning, Y.B., **53**, 237
 Nishishita, J., **53**, 223
 Noetzel, J., **54**, 574
 Northrup, M.A., **54**, 755
 Nottmeyer, K., **54**, 646
 Noworolski, J.M., **52**, 132; **54**, 709
 Obermeier, E., **53**, 405; **54**, 547, 651
 Ohnstein, T., **53**, 386
 Ohya, N., **54**, 760
 Ohyama, S., **54**, 457
 Olthuis, W., **52**, 18; **54**, 499
 Osborn, T.D., **54**, 704
 Ou-Yang, M., **53**, 273
 Paranjape, M., **53**, 278
 Paratte, L., **53**, 364
 Park, K., **54**, 579
 Passeraub, P.A., **52**, 114
 Paufler, J., **54**, 536
 Pedersen, M., **54**, 499
 Peeters, E.J.E.A., **52**, 179
 Petersen, J.W., **52**, 121
 Petersen, K., **52**, 132; **54**, 709
 Pinard, P., **54**, 700
 Pister, K.S.J., **52**, 216
 Popovic, R.S., **52**, 114
 Preud'homme, F., **53**, 423
 Prudenziati, M., **52**, 161
 Puers, R., **52**, 1, 169, 179; **53**, 261
 Qiu, L., **54**, 547
 Quandt, E., **53**, 434
 Racine, G.-A., **54**, 530
 Rangsten, P., **52**, 211
 Reay, R.J., **52**, 33, 187
 Regtien, P.P.L., **52**, 103
 Renaud, Ph., **53**, 364; **54**, 530
 Reynolds, J.K., **53**, 227
 Riethmüller, W., **54**, 674
 Robrish, P.R., **53**, 311
 Rockstad, H.K., **53**, 227
 Rodahl, M., **54**, 448
 Romanowicz, B., **54**, 530
 Ronot-Trioli, C., **54**, 589
 Rosengren, L., **52**, 211
 Rossberg, D., **54**, 793
 Rothe, M., **54**, 663
 Roumenin, Ch.S., **54**, 584
 Ruby, R.C., **53**, 311
 Sachot, R., **52**, 156
 Sager, K., **53**, 330
 Saif, M.T.A., **52**, 65
 Samitier, J., **54**, 718
 Sandberg, G., **52**, 81
 Sandmo, H., **54**, 728
 Sarro, P.M., **52**, 103; **54**, 505
 Sasayama, T., **54**, 714
 Satoh, H., **54**, 612
 Sauer, B., **54**, 443
 Schaer, M.A., **52**, 156
 Scheiter, Th., **54**, 659
 Schloßmacher, P., **53**, 434
 Schmitz, R., **52**, 175
 Schöllhorn, C., **52**, 140
 Schroth, A., **53**, 330; **54**, 632
 Schubert, A., **54**, 547
 Schuh, A., **53**, 256
 Schumacher, J., **53**, 243
 Schuylenbergh, K.V., **52**, 1
 Schweitz, J.-Å., **53**, 428; **54**, 674, 718
 Seltmann, R., **54**, 536
 Semmache, B., **54**, 700
 Senda, K., **54**, 760
 Setiadi, D., **52**, 103
 Setter, N., **53**, 353; **54**, 530
 Shie, J.-S., **53**, 273
 Shim, Y.-C., **54**, 468
 Shimizu, S., **52**, 110
 Shin, J.-W., **54**, 464
 Shoki, T., **54**, 695
 Short, J., **53**, 304
 Shulman, H.S., **53**, 353
 Simon, P.L.C., **52**, 203
 Sin, J.K.O., **54**, 482
 Sin, S.S.Y., **54**, 679
 Skokan, A., **53**, 434
 Skrobanek, K.D., **53**, 434
 Slater, T., **53**, 325, 423
 Smith, L., **52**, 211
 Smith, R.L., **54**, 594, 606
 Smulders, E.J.T., **54**, 669
 Söderkvist, J., **54**, 690
 Solgaard, O., **52**, 76
 Sood, D.K., **52**, 126
 Spangler, L.C., **54**, 523
 Spiegel, E., **54**, 563
 Spooren, R., **53**, 349
 Steiner, P., **53**, 284; **54**, 488
 Steinsland, E., **54**, 728
 Stemme, E., **54**, 558
 Stemme, G., **52**, 51; **54**, 558
 Steyaert, M., **52**, 179
 Storgaard-Larsen, T., **52**, 25
 Storment, C., **52**, 132
 Strobel, R., **52**, 140
 Suga, T., **54**, 477
 Sussi, M., **53**, 256
 Sutoh, M., **54**, 612
 Suzuki, M., **54**, 714
 Suzuki, S., **54**, 714
 Tabata, O., **53**, 335
 Tachiki, M.L., **52**, 216
 Tadokoro, Y., **54**, 612
 Tait, R.N., **53**, 237
 Takumi, T., **54**, 626
 Tan, S., **54**, 741
 Tanaka, H., **53**, 267
 Tang, T.K., **53**, 227
 Tang, Z., **54**, 482
 Testorf, M., **53**, 353
 Thornell, G., **53**, 428
 Tien, N.C., **52**, 76
 Tilmans, H.A.C., **52**, 179
 Tohyama, O., **54**, 622
 Tombesi, P., **52**, 161
 Tominaga, T., **54**, 760
 Tønnesen, T., **54**, 574
 Trevino, J., **54**, 755
 Trouillet, A., **54**, 589
 Tsuchitani, S., **54**, 714
 Ueda, K., **54**, 517
 Ulbricht, S., **54**, 443
 Ulrich, J., **53**, 379
 Umeda, A., **54**, 517
 Vancauwenbergh, O., **53**, 304
 Van Gerwen, P., **53**, 325, 423
 Veillas, C., **54**, 589
 Verhoeven, H.-J., **52**, 198
 Vetelino, J.F., **53**, 243
 Vieider, C., **52**, 51
 Vogel, P., **52**, 46
 Volanschi, A., **52**, 18
 Von Schickfus, M., **54**, 618
 Wagner, B., **54**, 746
 Wang, W., **54**, 741
 Watanabe, Y., **54**, 733
 Wehl, W., **53**, 405
 Welham, C.J., **52**, 86
 Wende, U., **54**, 443
 Wenk, B., **54**, 674
 White, R.M., **52**, 41; **54**, 542
 Williams, C.B., **52**, 8
 Windbracke, W., **54**, 663
 Wong, G.K.L., **54**, 679

Xu, J.F., 54 , 724	Yamamoto, T., 52 , 110	Ye, X.Y., 54 , 750	Zhao, Y., 54 , 472
	Yang, E.H., 54 , 684	Yee, Y., 52 , 145	Zherebov, A.Yu., 53 , 319
	Yang, S.S., 54 , 684	Yonezawa, E., 54 , 733	Zhou, Z.Y., 54 , 750
Yager, P., 54 , 704	Yang, Y., 54 , 750		Zimmer, G., 54 , 536
Yamaguchi, Y., 54 , 695	Yao, J., 54 , 750	Zengerle, R., 53 , 379	Zook, J.D., 52 , 92; 53 , 249, 386
Yamamoto, K., 54 , 622	Yates, R.B., 52 , 8	Zhang, J.H., 54 , 750	Zwicker, G., 54 , 674



Cumulative Subject Index of Volumes A52, A53 and A54

Acceleration switches

snapping microswitches with adjustable acceleration threshold, 54, 579

Accelerometers

opto-mechanical accelerometer based on strain sensing by a Bragg

grating in a planar waveguide, 52, 25

a miniature, high-sensitivity, electron tunneling accelerometer, 53, 227

sealed-cavity resonant microbeam accelerometer, 53, 249

an integrated force-balanced capacitive accelerometer for low-g applications, 54, 472

improvement of novel NRLM method for accelerometer characterization to the range 10^2 m s^{-2} , 54, 517

ISAAC: integrated silicon automotive accelerometer, 54, 523

quasianalog accelerometer using microswitch array, 54, 574

fabrication and characterization of a silicon capacitive structure for simultaneous detection of acceleration and angular rate, 54, 646

an accelerometer made in a two-layer surface-micromachining technology, 54, 651

highly reliable silicon micromachined physical sensors in mass production, 54, 714

Acoustic flow

the μ -flow: a novel device for measuring acoustic flows, 54, 552

Acoustic plate modes

on the mass sensitivity of acoustic-plate-mode sensors, 53, 243

Acoustic sensors

a miniature, high-sensitivity, electron tunneling accelerometer, 53, 227

Active-matrix addressing

deformable micromirror devices as phase-modulating high-resolution light valves, 54, 536

Active measurement

local positioning system by means of enclosing signal field, 54, 457

Actuated micromirrors

surface-micromachined mirrors for laser-beam positioning, 52, 76

Actuators

autocalibration of silicon Hall devices, 52, 203

electromagnetic linear actuators with inductive position sensing, 53, 386

Aliasing

a reflected-light receiver with 2 nA sensitivity using CDS and separate low-pass filtering of the input signal at each clock-phase, 52, 175

Alumina

a new etching method for single-crystal Al_2O_3 film on Si using Si ion implantation, 53, 340

Aluminium

aluminium press-on contacts for glass-to-silicon anodic bonding, 52, 151

pH-controlled TMAH etchants for silicon micromachining, 53, 335

Angular rate sensors

analysis of a highly sensitive silicon gyroscope with cantilever beam as vibrating mass, 54, 568

fabrication and characterization of a silicon capacitive structure for simultaneous detection of acceleration and angular rate, 54, 646

Anisotropic etching

diode-based thermal r.m.s. converter with on-chip circuitry fabricated using CMOS technology, 52, 33

pH-controlled TMAH etchants for silicon micromachining, 53, 335

alignment of mask patterns to crystal orientation, 53, 345

tactile microgripper for automated handling of microparts, 53, 410

Anodic bonding

aluminium press-on contacts for glass-to-silicon anodic bonding, 52, 151

a fiber-optic silicon pressure sensor for ultra-thin catheters, 54, 622

ANSYS/FLOTRAN

micro gas-flow sensor with integrated heat sink and flow guide, 54, 547

Arrays

quasianalog accelerometer using microswitch array, 54, 574

Autocalibration

autocalibration of silicon Hall devices, 52, 203

Automotive sensors

ISAAC: integrated silicon automotive accelerometer, 54, 523

Batteries

analysis of a micro-electric generator for microsystems, 52, 8

Bimorphs

snapping microswitches with adjustable acceleration threshold, 54, 579

Biotelemetry

self-tuning inductive powering for implantable telemetric monitoring systems, 52, 1

Blood flow

an invasive catheter flow sensor with on-chip CMOS readout electronics for the on-line determination of blood flow, 54, 563

Boron

electrical and piezoresistive characterization of boron-doped LPCVD polycrystalline silicon under rapid thermal annealing, 54, 700

Bragg gratings

opto-mechanical accelerometer based on strain sensing by a Bragg grating in a planar waveguide, 52, 25

Buckling

a millinewton microloading device, 52, 65

Bulk micromachining

silicon fusion bonding and deep reactive ion etching: a new technology for microstructures, 52, 132

silicon three-axial tactile sensor, 54, 505

analysis of a highly sensitive silicon gyroscope with cantilever beam as vibrating mass, 54, 568

fabrication and characterization of a silicon capacitive structure for simultaneous detection of acceleration and angular rate, 54, 646

Calibration

autocalibration of silicon Hall devices, 52, 203

Cantilevers

the quantitative determination of the residual stress profile in oxidized p^+ silicon films, 54, 684

Capacitance-voltage converters
a capacitive accelerometer using SDB-SOI structure, 53, 267

Capacitive
design of a silicon microphone with differential read-out of a sealed double parallel-plate capacitor, 53, 232

Capacitive accelerometers
a double-sided capacitive miniaturized accelerometer based on photovoltaic etch-stop technique, 53, 261

a capacitive accelerometer using SDB-SOI structure, 53, 267

Capacitive microphones
fabrication of a silicon micromachined capacitive microphone using a dry-etch process, 53, 237

Capacitive principle
silicon three-axial tactile sensor, 54, 505

Capacitive sensors
an integrated force-balanced capacitive accelerometer for low-g applications, 54, 472

Capacitors
a millinewton microloading device, 52, 65

Capillarity
a millinewton microloading device, 52, 65

Carrier confinement
a CMOS-compatible 2-D vertical Hall magnetic-field sensor using active carrier confinement and post-process micromachining, 53, 278

Catheters
an invasive catheter flow sensor with on-chip CMOS readout electronics for the on-line determination of blood flow, 54, 563

a fiber-optic silicon pressure sensor for ultra-thin catheters, 54, 622

CdZnTe detectors
a new CdZnTe detector system for low-energy gamma-ray measurement, 54, 493

Ceramics
instabilities in the piezoelectric properties of ferroelectric ceramics, 53, 353

Charge injection
mixed analog-digital highly sensitive sensor interface circuit for low-cost microsensors, 52, 193

CMOS
a CMOS-compatible 2-D vertical Hall magnetic-field sensor using active carrier confinement and post-process micromachining, 53, 278

a miniaturized magnetic-field sensor system consisting of a planar fluxgate sensor and a CMOS readout circuitry, 54, 443

CMOS-compatible traction stress sensor for use in high-resolution tactile imaging, 54, 511

CMOS technology
a thermoelectric infrared radiation sensor with monolithically integrated amplifier stage and temperature sensor, 54, 601

Comb-drive microactuators
surface-micromachined mirrors for laser-beam positioning, 52, 76

Compressional waves
extensions of the quartz-crystal-microbalance technique, 53, 371

Condensation
microsensor for the preventive detection of water condensation: operating principle and interface electronics, 53, 304

Conductivity
new effects in electroactive polymers: new basics for sensors, 53, 319

Constant-temperature circuits
a sensitive Pirani vacuum sensor and the electrothermal SPICE modelling, 53, 273

Contacting
high-resolution shadow-mask patterning in deep holes and its application to an electrical wafer feed-through, 54, 669

Control
characterizing deflectable microstructures via a high-resolution laser-based measurement system, 52, 12

Coupling
simulation of a complex sensor system using coupled simulation programs, 54, 632

3C silicon carbide films
properties of heteroepitaxial 3C-SiC films grown by LPCVD, 54, 695

3C silicon carbide membranes
properties of heteroepitaxial 3C-SiC films grown by LPCVD, 54, 695

Damping control
a capacitive accelerometer using SDB-SOI structure, 53, 267

Deep reactive ion etching
silicon fusion bonding and deep reactive ion etching: a new technology for microstructures, 52, 132

Deflection
characterizing deflectable microstructures via a high-resolution laser-based measurement system, 52, 12

Deformable viscoelastic layers
deformable micromirror devices as phase-modulating high-resolution light valves, 54, 536

Delta-sigma modulation
ISAAC: integrated silicon automotive accelerometer, 54, 523

Density
silicon tube structures for a fluid-density sensor, 54, 558

Devices
a millinewton microloading device, 52, 65

Diaphragms
electrostatically excited diaphragm driven as a loudspeaker, 52, 211

Differential SOS structures
2D magnetodiode sensors based on SOS technology, 54, 584

Domains
instabilities in the piezoelectric properties of ferroelectric ceramics, 53, 353

Dry etching
fabrication of a silicon micromachined capacitive microphone using a dry-etch process, 53, 237

Dynamic operation mode
self-excited force-sensing microcantilevers with piezoelectric thin films for dynamic scanning force microscopy, 54, 477

Dynamic range
a polysilicon flow sensor for gas flow meters, 54, 626

Dynamic surface tension
gas bubbles electrolytically generated at microcavity electrodes used for the measurement of the dynamic surface tension in liquids, 52, 18

Elastic magnets
flow sensing and pumping using flexible permanent magnet beams, 52, 59

Elastic waves
improvement of novel NRLM method for accelerometer characterization to the range 10^2 m s^{-2} , 54, 517

Electrical levitation
electrical levitation for micromotors, microgyroscopes and micro-accelerometers, 54, 741

Electrical properties
properties of heteroepitaxial 3C-SiC films grown by LPCVD, 54, 695

electrical and piezoresistive characterization of boron-doped LPCVD polycrystalline silicon under rapid thermal annealing, 54, 700

Electric field
new effects in electroactive polymers: new basics for sensors, 53, 319

Electrochemical etch stop
diode-based thermal r.m.s. converter with on-chip circuitry fabricated using CMOS technology, 52, 33

fabrication of SOI wafers with buried cavities using silicon fusion bonding and electrochemical etchback, 54, 709

Electrode arrays
 an active, microfabricated, scalp electrode array for EEG recording, **54**, 606
 an integrated multichannel charged-particle sensing system, **54**, 777

Electrodeposition
 microcoils fabricated by UV depth lithography and galvanoplating, **54**, 663

Electroencephalograms
 an active, microfabricated, scalp electrode array for EEG recording, **54**, 606

Electroless Cu plating
 selective seeding of copper films on polyimide-patterned silicon substrate, using ion implantation, **52**, 126

Electrolysis
 gas bubbles electrolytically generated at microcavity electrodes used for the measurement of the dynamic surface tension in liquids, **52**, 18

Electromagnetic microsystems
 scaling down an inductive proximity sensor, **52**, 114

Electromechanical simulation
 on the mechanical behaviour of thin perforated plates and their application in silicon condenser microphones, **54**, 499

Electron emission
 a novel low-field electron-emission polycrystalline diamond microtip array for sensor applications, **54**, 724

Electronic calibration
 ISAAC: integrated silicon automotive accelerometer, **54**, 523

Electron spectrometers
 an integrated multichannel charged-particle sensing system, **54**, 777

Electron tunneling
 a miniature, high-sensitivity, electron tunneling accelerometer, **53**, 227

Electroplating
 a new fabrication process of a planar coil using photosensitive polyimide and electroplating, **54**, 733

Electrostatic
 thermomechanical characteristics of a thermal switch, **53**, 423

Electrostatic actuation
 electrostatically excited diaphragm driven as a loudspeaker, **52**, 211

Electrostatic actuators
 high-voltage devices and circuits fabricated using foundry CMOS for use with electrostatic MEM actuators, **52**, 187

Electrostatic excitation and detection
 an oscillator circuit for electrostatically driven silicon-based one-port resonators, **52**, 179

Electrostatic microactuators
 verification of the micromechanical characteristics of electrostatic linear actuators, **53**, 416

Electrostatic microgyroscopes
 electrical levitation for micromotors, microgyroscopes and micro-accelerometers, **54**, 741

Electrothermal SPICE
 a sensitive Pirani vacuum sensor and the electrothermal SPICE modelling, **53**, 273

Emitter injection modulation
 highly sensitive magnetotransistor with combined phenomena of Hall effect and emitter injection modulation operated in the saturation mode, **54**, 641

Equivalent circuits
 an oscillator circuit for electrostatically driven silicon-based one-port resonators, **52**, 179

Etching
 a new etching method for single-crystal Al_2O_3 film on Si using Si ion implantation, **53**, 340
 boron etch-stop in TMAH solutions, **54**, 728

Etch-stop
 boron etch-stop in TMAH solutions, **54**, 728

Fatigue property
 determination of the mechanical properties of microstructures, **54**, 750

Feedback
 design of a silicon microphone with differential read-out of a sealed double parallel-plate capacitor, **53**, 232

Feedback method
 mixed analog-digital highly sensitive sensor interface circuit for low-cost microsensors, **52**, 193

Feed-throughs
 high-resolution shadow-mask patterning in deep holes and its application to an electrical wafer feed-through, **54**, 669

FEM-modelling
 design of a silicon microphone with differential read-out of a sealed double parallel-plate capacitor, **53**, 232

FEM simulations
 static and dynamic flow simulation of a KOH-etched microvalve using the finite-element method, **53**, 379

micro gas-flow sensor with integrated heat sink and flow guide, **54**, 547

Ferroelectric
 instabilities in the piezoelectric properties of ferroelectric ceramics, **53**, 353

Ferromagnetic materials
 magnetic sensors for nanotesla detection using planar Hall effect, **53**, 256

Ferromagnetic thick films
 preparation and properties of new thick-film magnetoresistive materials, **52**, 161

Fiber-optic sensors
 optically excited self-resonant microbeams, **52**, 92
 a fiber-optic silicon pressure sensor for ultra-thin catheters, **54**, 622

Figure of merit
 thin-film boron-doped polycrystalline silicon_{70%}-germanium_{30%} for thermopiles, **53**, 325

Filters
 a reflected-light receiver with 2 nA sensitivity using CDS and separate low-pass filtering of the input signal at each clock-phase, **52**, 175

Finite differences
 on the mechanical behaviour of thin perforated plates and their application in silicon condenser microphones, **54**, 499

Finite element
 a millinewton microloading device, **52**, 65

Finite-element analysis
 thermal analysis and design of a micro-hotplate for integrated gas-sensor applications, **54**, 482

Finite-element method
 silicon three-axial tactile sensor, **54**, 505
 simulation of a complex sensor system using coupled simulation programs, **54**, 632

Flow guides
 micro gas-flow sensor with integrated heat sink and flow guide, **54**, 547

Flow sensors
 an integrated pressure-flow sensor for correlation measurements in turbulent gas flows, **52**, 51
 flow sensing and pumping using flexible permanent magnet beams, **52**, 59
 a non-contacting sensor system for respiratory air flow detection, **52**, 81
 design of integrated thermal flow sensors using thermal sigma-delta modulation, **52**, 198
 a polysilicon flow sensor for gas flow meters, **54**, 626

Fluid filters
 a planar microfabricated fluid filter, **54**, 704

Fluid flow simulation
static and dynamic flow simulation of a KOH-etched microvalve using the finite-element method, 53, 379

Fluidic components
a bistable pneumatic microswitch for driving fluidic components, 54, 746

Fluid pumps
flow sensing and pumping using flexible permanent magnet beams, 52, 59

Fluids
silicon tube structures for a fluid-density sensor, 54, 558

Fluxgates
a miniaturized magnetic-field sensor system consisting of a planar fluxgate sensor and a CMOS readout circuitry, 54, 443

Fluxgate sensors
high-resolution micro-fluxgate sensing elements using closely coupled coil structures, 54, 612

Force
design and performance characteristics of an integrated high-capacity DETF-based force sensor, 52, 99

Force-balanced sensors
an integrated force-balanced capacitive accelerometer for low-g applications, 54, 472

Force-balancing
design of a silicon microphone with differential read-out of a sealed double parallel-plate capacitor, 53, 232

Force measurements
verification of the micromechanical characteristics of electrostatic linear actuators, 53, 416

Frequency response
improvement of novel NRLM method for accelerometer characterization to the range 10^2 m s^{-2} , 54, 517

Frequency-signature sensors
a microelectromechanics-based frequency-signature sensor, 53, 288

Friction
on the measurement of thin liquid overlayers with the quartz-crystal microbalance, 54, 448

Gallium arsenide
photodetection and light emission of GaAs negative-resistance switching device, 52, 110

Gamma-ray densitometry
a new CdZnTe detector system for low-energy gamma-ray measurement, 54, 493

Gamma-ray measurement
a new CdZnTe detector system for low-energy gamma-ray measurement, 54, 493

Gas bubbles
gas bubbles electrolytically generated at microcavity electrodes used for the measurement of the dynamic surface tension in liquids, 52, 18

Gas sensors
a new sensor principle based on the reflection of surface acoustic waves, 54, 618

Generators
analysis of a micro-electric generator for microsystems, 52, 8

Grain holes
polysilicon surface-modification technique to reduce sticking of microstructures, 52, 145

Gripping tool
design and fabrication of a gripping tool for micromanipulation, 53, 428

Gyroscopes
analysis of a highly sensitive silicon gyroscope with cantilever beam as vibrating mass, 54, 568

Hall devices
autocalibration of silicon Hall devices, 52, 203
a CMOS-compatible 2-D vertical Hall magnetic-field sensor using active carrier confinement and post-process micromachining, 53, 278

Hall effect
highly sensitive magnetotransistor with combined phenomena of Hall effect and emitter injection modulation operated in the saturation mode, 54, 641

Hard-spring effect
an oscillator circuit for electrostatically driven silicon-based one-port resonators, 52, 179

Heat sinks
micro gas-flow sensor with integrated heat sink and flow guide, 54, 547

Hermeticity
new method for testing hermeticity of silicon sensor structures, 53, 349

High-aspect-ratio microstructures
silicon fusion bonding and deep reactive ion etching: a new technology for microstructures, 52, 132

High-energy particle detectors
microfabricated high-energy particle detector, 54, 594

High resolution
CMOS-compatible traction stress sensor for use in high-resolution tactile imaging, 54, 511

High temperature
extensions of the quartz-crystal-microbalance technique, 53, 371

High-voltage devices
high-voltage devices and circuits fabricated using foundry CMOS for use with electrostatic MEM actuators, 52, 187

Horns
silicon microfabricated horns for power ultrasonics, 54, 542

Humidity
microsensor for the preventive detection of water condensation: operating principle and interface electronics, 53, 304
humidity-dependent mechanical properties of polyimide films and their use for IC-compatible humidity sensors, 53, 330

Hybrids and interconnection
linking sensors with telemetry: impact on the system design, 52, 169

Hydrogen detection
extensions of the quartz-crystal-microbalance technique, 53, 371

Hydrophones
a miniature, high-sensitivity, electron tunneling accelerometer, 53, 227

Imaging sensors
a novel image storage sensor using photostimulated luminescence in SrS:Eu,Sm phosphor for electromagnetic waves such as X-rays, UV-rays and visible light, 53, 223

Impact
improvement of novel NRLM method for accelerometer characterization to the range 10^2 m s^{-2} , 54, 517

Implantation
selective seeding of copper films on polyimide-patterned silicon substrate, using ion implantation, 52, 126

Inductive powering
self-tuning inductive powering for implantable telemetric monitoring systems, 52, 1

Inductive proximity sensors
scaling down an inductive proximity sensor, 52, 114

Industrial applications
LIGA and related technologies for industrial application, 54, 785

Infrared
thermomechanical characteristics of a thermal switch, 53, 423

Infrared sensors
a 3×1 integrated pyroelectric sensor based on VDF/TrFE copolymer, 52, 103

a thermoelectric infrared radiation sensor with monolithically integrated amplifier stage and temperature sensor, 54, 601

Inkjet printheads
a micromachined single-chip inkjet printhead, 53, 405

Integrated infrared sensors
optical properties of the integrated infrared sensor, 54, 793

Integrated optics
verification of the micromechanical characteristics of electrostatic linear actuators, 53, 416

Integrated sensors
an integrated force-balanced capacitive accelerometer for low-g applications, 54, 472

Intelligent systems
linking sensors with telemetry: impact on the system design, 52, 169

Interface circuits
mixed analog-digital highly sensitive sensor interface circuit for low-cost microsensors, 52, 193

Interface electronics
design of integrated thermal flow sensors using thermal sigma-delta modulation, 52, 198
microsensor for the preventive detection of water condensation: operating principle and interface electronics, 53, 304

Interferometry
improvement of novel NRLM method for accelerometer characterization to the range 10^2 m s^{-2} , 54, 517

Invasive measurement
an invasive catheter flow sensor with on-chip CMOS readout electronics for the on-line determination of blood flow, 54, 563

Ion implantation
a new etching method for single-crystal Al_2O_3 film on Si using Si ion implantation, 53, 340

Laminated dry film resist
low-cost technology for multilayer electroplated parts using laminated dry film resist, 53, 364

Laser direct etching
fast three-dimensional laser micromachining of silicon for microsystems, 52, 121

Lead zirconium titanate
piezoelectric cantilever beams actuated by PZT sol-gel thin film, 54, 530

Lifetime
characterizing deflectable microstructures via a high-resolution laser-based measurement system, 52, 12

LIGA
verification of the micromechanical characteristics of electrostatic linear actuators, 53, 416
LIGA and related technologies for industrial application, 54, 785

Light emission
photodetection and light emission of GaAs negative-resistance switching device, 52, 110

Light valves
deformable micromirror devices as phase-modulating high-resolution light valves, 54, 536

Liquid pressure seals
an experimental study of rotating micromechanical liquid O-ring pressure seals, 54, 765

Load
a millinewton microloading device, 52, 65

Local positioning system
local positioning system by means of enclosing signal field, 54, 457

Loudspeakers
electrostatically excited diaphragm driven as a loudspeaker, 52, 211

Low-noise electronics
mixed analog-digital highly sensitive sensor interface circuit for low-cost microsensors, 52, 193

Low power consumption
linking sensors with telemetry: impact on the system design, 52, 169

Low-temperature bonding
new multichip-on-silicon packaging scheme for microsystems, 52, 156

Magnetic drive
electromagnetic linear actuators with inductive position sensing, 53, 386

Magnetic-field sensors
a CMOS-compatible 2-D vertical Hall magnetic-field sensor using active carrier confinement and post-process micromachining, 53, 278
a miniaturized magnetic-field sensor system consisting of a planar fluxgate sensor and a CMOS readout circuitry, 54, 443

Magnetic microsensors
high-resolution micro-fluxgate sensing elements using closely coupled coil structures, 54, 612

Magnetic sensors
magnetic sensors for nanotesla detection using planar Hall effect, 53, 256
minimum detectable signals of integrated magnetic sensors in bulk CMOS and SOI technologies for magnetic read heads, 54, 636

Magnetoresistance
magnetic sensors for nanotesla detection using planar Hall effect, 53, 256

Magnetoresistors
preparation and properties of new thick-film magnetoresistive materials, 52, 161

Magnetotransistors
highly sensitive magnetotransistor with combined phenomena of Hall effect and emitter injection modulation operated in the saturation mode, 54, 641

Mask alignment
alignment of mask patterns to crystal orientation, 53, 345

Mass sensitivity
on the mass sensitivity of acoustic-plate-mode sensors, 53, 243

Mechanical properties
properties of heteroepitaxial 3C-SiC films grown by LPCVD, 54, 695
determination of the mechanical properties of microstructures, 54, 750

Metal-insulator-semiconductor
photodetection and light emission of GaAs negative-resistance switching device, 52, 110

Microaccelerometers
electrical levitation for micromotors, microgyroscopes and micro-accelerometers, 54, 741

Microactuators
magnetic microactuation of torsional polysilicon structures, 53, 392

Microchannel plates
an integrated multichannel charged-particle sensing system, 54, 777

Microcoils
high-resolution micro-fluxgate sensing elements using closely coupled coil structures, 54, 612
microcoils fabricated by UV depth lithography and galvanoplating, 54, 663

Microelectromechanical instruments
a millinewton microloading device, 52, 65

Microelectromechanical systems
analysis of a micro-electric generator for microsystems, 52, 8
silicon fusion bonding and deep reactive ion etching: a new technology for microstructures, 52, 132
high-voltage devices and circuits fabricated using foundry CMOS for use with electrostatic MEM actuators, 52, 187
sealed-cavity resonant microbeam accelerometer, 53, 249

Microelectromechanics
a microelectromechanics-based frequency-signature sensor, 53, 288

Microfabrication
 low-cost technology for multilayer electroplated parts using laminated dry film resist, 53, 364
 silicon microfabricated horns for power ultrasonics, 54, 542
 microfabricated high-energy particle detector, 54, 594
 an active, microfabricated, scalp electrode array for EEG recording, 54, 606

Microfabrication techniques
 thermal analysis and design of a micro-hotplate for integrated gas-sensor applications, 54, 482

Microflow
 the μ -flow: a novel device for measuring acoustic flows, 54, 552

Microfluidic
 a planar microfabricated fluid filter, 54, 704

Micro gas-flow sensors
 micro gas-flow sensor with integrated heat sink and flow guide, 54, 547

Microgrippers
 tactile microgripper for automated handling of microparts, 53, 410
 a practical microgripper by fine alignment, eutectic bonding and SMA actuation, 54, 755

Micro-hotplates
 thermal analysis and design of a micro-hotplate for integrated gas-sensor applications, 54, 482

Microlenses
 fabrication of microlenses by plasmaless isotropic etching combined with plastic moulding, 53, 361

Micromachining
 diode-based thermal r.m.s. converter with on-chip circuitry fabricated using CMOS technology, 52, 33
 megahertz opto-mechanical modulator, 52, 46
 a laterally driven micromachined resonant pressure sensor, 52, 86
 a miniature, high-sensitivity, electron tunneling accelerometer, 53, 227
 fabrication of a silicon micromachined capacitive microphone using a dry-etch process, 53, 237
 sealed-cavity resonant microbeam accelerometer, 53, 249
 a CMOS-compatible 2-D vertical Hall magnetic-field sensor using active carrier confinement and post-process micromachining, 53, 278
 thin-film boron-doped polycrystalline silicon_{70%}-germanium_{30%} for thermopiles, 53, 325
 alignment of mask patterns to crystal orientation, 53, 345
 a micromachined single-chip inkjet printhead, 53, 405
 high-resolution shadow-mask patterning in deep holes and its application to an electrical wafer feed-through, 54, 669
 highly reliable silicon micromachined physical sensors in mass production, 54, 714
 optical properties of the integrated infrared sensor, 54, 793

Micromagnetodiodes
 2D magnetodiode sensors based on SOS technology, 54, 584

Micromanipulation
 design and fabrication of a gripping tool for micromanipulation, 53, 428

Micromechanics
 flow sensing and pumping using flexible permanent magnet beams, 52, 59
 micromachined 1 \times 2 optical-fiber switch, 53, 311
 an experimental study of rotating micromechanical liquid O-ring pressure seals, 54, 765

Micromirror devices
 deformable micromirror devices as phase-modulating high-resolution light valves, 54, 536

Micromirrors
 integration of surface-micromachined polysilicon mirrors and a standard CMOS process, 52, 140
 magnetic microactuation of torsional polysilicon structures, 53, 392

design and fabrication of micromirror supported by electroplated nickel posts, 54, 464

Micromotors
 a new fabrication process of a planar coil using photosensitive polyimide and electroplating, 54, 733
 electrical levitation for micromotors, microgyroscopes and micro-accelerometers, 54, 741

Microphones
 design of a silicon microphone with differential read-out of a sealed double parallel-plate capacitor, 53, 232

Microphotronics
 surface-micromachined mirrors for laser-beam positioning, 52, 76
 magnetic microactuation of torsional polysilicon structures, 53, 392

Microplasmas
 generating a microplasma with porous silicon, 53, 284

Micropumps
 static and dynamic flow simulation of a KOH-etched microvalve using the finite-element method, 53, 379

Microsensors for magnetic fields
 2D magnetodiode sensors based on SOS technology, 54, 584

Microspeakers
 self-excited piezoelectric cantilever oscillators, 52, 41

Microstructures
 characterizing deflectable microstructures via a high-resolution laser-based measurement system, 52, 12
 determination of the mechanical properties of microstructures, 54, 750

Microswitches
 quasianalog accelerometer using microswitch array, 54, 574
 snapping microswitches with adjustable acceleration threshold, 54, 579
 a bistable pneumatic microswitch for driving fluidic components, 54, 746

Microsystems
 linking sensors with telemetry: impact on the system design, 52, 169
 a miniaturized magnetic-field sensor system consisting of a planar fluxgate sensor and a CMOS readout circuitry, 54, 443
 simulation of a complex sensor system using coupled simulation programs, 54, 632

Microtip arrays
 a novel low-field electron-emission polycrystalline diamond microtip array for sensor applications, 54, 724

Microvalves
 static and dynamic flow simulation of a KOH-etched microvalve using the finite-element method, 53, 379

Miniaturized flat coils
 scaling down an inductive proximity sensor, 52, 114

Minimum detectable signals
 minimum detectable signals of integrated magnetic sensors in bulk CMOS and SOI technologies for magnetic read heads, 54, 636

Modulators
 megahertz opto-mechanical modulator, 52, 46

Multichip-on-silicon
 new multichip-on-silicon packaging scheme for microsystems, 52, 156

Multi-detector
 an integrated multichannel charged-particle sensing system, 54, 777

Multilayer electroplating
 low-cost technology for multilayer electroplated parts using laminated dry film resist, 53, 364

Multilayer structures
 bending and expanding motion actuators, 54, 760

Nanotesla detection
 magnetic sensors for nanotesla detection using planar Hall effect, 53, 256
 high-resolution micro-fluxgate sensing elements using closely coupled coil structures, 54, 612

Navigation sensors
 mixed analog-digital highly sensitive sensor interface circuit for low-cost microsensors, 52, 193

Negative resistance
 photodetection and light emission of GaAs negative-resistance switching device, 52, 110

Network
 simulation of a complex sensor system using coupled simulation programs, 54, 632

Nickel electroplating
 design and fabrication of micromirror supported by electroplated nickel posts, 54, 464

NiFe
 magnetic microactuation of torsional polysilicon structures, 53, 392

Non-contacting sensors
 a non-contacting sensor system for respiratory air flow detection, 52, 81

Nonlinear dynamics
 dynamics of polysilicon parallel-plate electrostatic actuators, 52, 216

Non-reciprocity
 a non-contacting sensor system for respiratory air flow detection, 52, 81

Nucleonic instrumentation
 a new CdZnTe detector system for low-energy gamma-ray measurement, 54, 493

On-chip electronics
 an invasive catheter flow sensor with on-chip CMOS readout electronics for the on-line determination of blood flow, 54, 563

Optical detection of motion
 verification of the micromechanical characteristics of electrostatic linear actuators, 53, 416

Optical fibers
 micromachined 1×2 optical-fiber switch, 53, 311

Optical fibres
 monochromatic excitation of surface plasmon resonance in an optical-fibre refractive-index sensor, 54, 589

Optical measurement
 dynamics of polysilicon parallel-plate electrostatic actuators, 52, 216

Optical properties
 properties of heteroepitaxial 3C-SiC films grown by LPCVD, 54, 695

Optical sensors
 characterizing deflectable microstructures via a high-resolution laser-based measurement system, 52, 12

Optical waveguides
 a reflected-light receiver with 2 nA sensitivity using CDS and separate low-pass filtering of the input signal at each clock-phase, 52, 175

Optical switching diodes
 photodetection and light emission of GaAs negative-resistance switching device, 52, 110

Optoelectronic microsystems
 new multichip-on-silicon packaging scheme for microsystems, 52, 156

Opto-mechanical sensors
 opto-mechanical accelerometer based on strain sensing by a Bragg grating in a planar waveguide, 52, 25

Opto-mechanical systems
 megahertz opto-mechanical modulator, 52, 46

O-rings
 an experimental study of rotating micromechanical liquid O-ring pressure seals, 54, 765

Orthopaedics
 self-tuning inductive powering for implantable telemetric monitoring systems, 52, 1

Oscillation criteria
 an oscillator circuit for electrostatically driven silicon-based one-port resonators, 52, 179

Oscillator circuits
 an oscillator circuit for electrostatically driven silicon-based one-port resonators, 52, 179

Parallel-plate electrostatic actuator
 dynamics of polysilicon parallel-plate electrostatic actuators, 52, 216

Passive component integration
 new multichip-on-silicon packaging scheme for microsystems, 52, 156

Passive restraint systems
 ISAAC: integrated silicon automotive accelerometer, 54, 523

Patterning
 high-resolution shadow-mask patterning in deep holes and its application to an electrical wafer feed-through, 54, 669

Perforated plates
 on the mechanical behaviour of thin perforated plates and their application in silicon condenser microphones, 54, 499

pH
 pH-controlled TMAH etchants for silicon micromachining, 53, 335

Phase modulation
 deformable micromirror devices as phase-modulating high-resolution light valves, 54, 536

Phase transitions
 new effects in electroactive polymers: new basics for sensors, 53, 319
 on the measurement of thin liquid overlayers with the quartz-crystal microbalance, 54, 448

Photodetection
 photodetection and light emission of GaAs negative-resistance switching device, 52, 110

Photoresist
 microcoils fabricated by UV depth lithography and galvanoplating, 54, 663

Photostimulated luminescence
 a novel image storage sensor using photostimulated luminescence in SrS:Eu,Sm phosphor for electromagnetic waves such as X-rays, UV-rays and visible light, 53, 223

Photovoltaic etch-stop technique
 a double-sided capacitive miniaturized accelerometer based on photovoltaic etch-stop technique, 53, 261

Phthalocyanine
 a new sensor principle based on the reflection of surface acoustic waves, 54, 618

Physical sensors
 highly reliable silicon micromachined physical sensors in mass production, 54, 714

Piezoelectric
 instabilities in the piezoelectric properties of ferroelectric ceramics, 53, 353

Piezoelectric actuators
 bending and expanding motion actuators, 54, 760

Piezoelectric cantilevers
 self-excited piezoelectric cantilever oscillators, 52, 41
 piezoelectric cantilever beams actuated by PZT sol-gel thin film, 54, 530

Piezoelectricity
 piezoelectric actuation of PZT thin-film diaphragms at static and resonant conditions, 53, 398
 limitations to the piezoelectric effect for materials with finite resistivity, 54, 690

Piezoelectric microcantilevers
 self-excited force-sensing microcantilevers with piezoelectric thin films for dynamic scanning force microscopy, 54, 477

Piezoresistive sensors
 tactile microgripper for automated handling of microparts, 53, 410

Piezoresistivity
 electrical and piezoresistive characterization of boron-doped LPCVD polycrystalline silicon under rapid thermal annealing, **54**, 700

Piezoresistors
 a pressure sensor based on a nitride membrane using single-crystalline piezoresistors, **54**, 488

Pirani microsensors
 a sensitive Pirani vacuum sensor and the electrothermal SPICE modelling, **53**, 273

Planar coils
 a new fabrication process of a planar coil using photosensitive polyimide and electroplating, **54**, 733

Planar Hall effect
 magnetic sensors for nanotesla detection using planar Hall effect, **53**, 256

Plasmaless isotropic etching
 fabrication of microlenses by plasmaless isotropic etching combined with plastic moulding, **53**, 361

Plastic moulding
 fabrication of microlenses by plasmaless isotropic etching combined with plastic moulding, **53**, 361

PMV indicators
 silicon-based thermal comfort sensing device, **54**, 468

Pneumatic switches
 a bistable pneumatic microswitch for driving fluidic components, **54**, 746

Polycrystalline diamond
 a novel low-field electron-emission polycrystalline diamond microtip array for sensor applications, **54**, 724

Polycrystalline silicon-germanium
 thin-film boron-doped polycrystalline silicon_{70%}-germanium_{30%} for thermopiles, **53**, 325

Polyimide
 selective seeding of copper films on polyimide-patterned silicon substrate, using ion implantation, **52**, 126
 humidity-dependent mechanical properties of polyimide films and their use for IC-compatible humidity sensors, **53**, 330
 a new fabrication process of a planar coil using photosensitive polyimide and electroplating, **54**, 733

Polyimide curing
 humidity-dependent mechanical properties of polyimide films and their use for IC-compatible humidity sensors, **53**, 330

Polymers
 new effects in electroactive polymers: new basics for sensors, **53**, 319

Polysilicon
 a laterally driven micromachined resonant pressure sensor, **52**, 86
 integration of surface-micromachined polysilicon mirrors and a standard CMOS process, **52**, 140
 polysilicon surface-modification technique to reduce sticking of microstructures, **52**, 145
 magnetic microactuation of torsional polysilicon structures, **53**, 392
 a polysilicon flow sensor for gas flow meters, **54**, 626
 thick polycrystalline silicon for surface-micromechanical applications: deposition, structuring and mechanical characterization, **54**, 674
 electrical and piezoresistive characterization of boron-doped LPCVD polycrystalline silicon under rapid thermal annealing, **54**, 700
 stress-profile characterization and test-structure analysis of single and double ion-implanted LPCVD polycrystalline silicon, **54**, 718

Polysilicon hinges
 surface-micromachined mirrors for laser-beam positioning, **52**, 76

Polysilicon microgripper
 dynamics of polysilicon parallel-plate electrostatic actuators, **52**, 216

Porous silicon
 generating a microplasma with porous silicon, **53**, 284

Position measurement
 local positioning system by means of enclosing signal field, **54**, 457

Position sensing
 electromagnetic linear actuators with inductive position sensing, **53**, 386

Position-sensitive
 an integrated multichannel charged-particle sensing system, **54**, 777

Power consumption
 a polysilicon flow sensor for gas flow meters, **54**, 626

Power supplies
 analysis of a micro-electric generator for microsystems, **52**, 8

Power ultrasonics
 silicon microfabricated horns for power ultrasonics, **54**, 542

Predicted mean vote (PMV)
 silicon-based thermal comfort sensing device, **54**, 468

Press-on contacts
 aluminium press-on contacts for glass-to-silicon anodic bonding, **52**, 151

Pressure
 new effects in electroactive polymers: new basics for sensors, **53**, 319

Pressure measurement
 a fiber-optic silicon pressure sensor for ultra-thin catheters, **54**, 622

Pressure sensors
 an integrated pressure-flow sensor for correlation measurements in turbulent gas flows, **52**, 51
 a laterally driven micromachined resonant pressure sensor, **52**, 86
 a pressure sensor based on a nitride membrane using single-crystalline piezoresistors, **54**, 488
 electrical and piezoresistive characterization of boron-doped LPCVD polycrystalline silicon under rapid thermal annealing, **54**, 700

p⁺ ring
 highly sensitive magnetotransistor with combined phenomena of Hall effect and emitter injection modulation operated in the saturation mode, **54**, 641

Process
 characterizing deflectable microstructures via a high-resolution laser-based measurement system, **52**, 12

p⁺ silicon films
 the quantitative determination of the residual stress profile in oxidized p⁺ silicon films, **54**, 684

Pyroelectric sensors
 a 3×1 integrated pyroelectric sensor based on VDF/TrFE copolymer, **52**, 103

Q-factor
 on the measurement of thin liquid overlayers with the quartz-crystal microbalance, **54**, 448

Quality factor
 quality factor of torsional resonators in the low-pressure region, **53**, 299

Quartz-crystal microbalance
 extensions of the quartz-crystal-microbalance technique, **53**, 371

Quartz-crystal microbalances
 on the measurement of thin liquid overlayers with the quartz-crystal microbalance, **54**, 448

Q-value
 limitations to the piezoelectric effect for materials with finite resistivity, **54**, 690

Radiators
 thermomechanical characteristics of a thermal switch, **53**, 423

Rapid prototyping
 fast three-dimensional laser micromachining of silicon for microsystems, **52**, 121

Rapid thermal annealing
 electrical and piezoresistive characterization of boron-doped LPCVD polycrystalline silicon under rapid thermal annealing, **54**, 700

Reactive ion etching (RIE)
 design and fabrication of micromirror supported by electroplated nickel posts, 54, 464

Read heads
 minimum detectable signals of integrated magnetic sensors in bulk CMOS and SOI technologies for magnetic read heads, 54, 636

Receivers
 a reflected-light receiver with 2 nA sensitivity using CDS and separate low-pass filtering of the input signal at each clock-phase, 52, 175

Reflected impedance
 scaling down an inductive proximity sensor, 52, 114

Reflection
 a new sensor principle based on the reflection of surface acoustic waves, 54, 618

Refractive-index sensors
 monochromatic excitation of surface plasmon resonance in an optical-fibre refractive-index sensor, 54, 589

Relative sensitivity
 highly sensitive magnetotransistor with combined phenomena of Hall effect and emitter injection modulation operated in the saturation mode, 54, 641

Remote gripping
 a practical microgripper by fine alignment, eutectic bonding and SMA actuation, 54, 755

Residual stress
 the quantitative determination of the residual stress profile in oxidized p⁺ silicon films, 54, 684

determination of the mechanical properties of microstructures, 54, 750

Resistivity
 limitations to the piezoelectric effect for materials with finite resistivity, 54, 690

Resonance
 a laterally driven micromachined resonant pressure sensor, 52, 86

Resonance frequency
 determination of the mechanical properties of microstructures, 54, 750

Resonant
 silicon tube structures for a fluid-density sensor, 54, 558

Resonant sensors
 optically excited self-resonant microbeams, 52, 92

sealed-cavity resonant microbeam accelerometer, 53, 249

analysis of a highly sensitive silicon gyroscope with cantilever beam as a vibrating mass, 54, 568

Resonators
 design and performance characteristics of an integrated high-capacity DETF-based force sensor, 52, 99

Respiration
 a non-contacting sensor system for respiratory air flow detection, 52, 81

Response time
 a polysilicon flow sensor for gas flow meters, 54, 626

R.m.s. converter
 diode-based thermal r.m.s. converter with on-chip circuitry fabricated using CMOS technology, 52, 33

Robotics
 CMOS-compatible traction stress sensor for use in high-resolution tactile imaging, 54, 511

Robots
 tactile microgripper for automated handling of microparts, 53, 410

Rotating beam structures
 the quantitative determination of the residual stress profile in oxidized p⁺ silicon films, 54, 684

Sacrificial layer
 design and fabrication of micromirror supported by electroplated nickel posts, 54, 464

Satellites
 thermomechanical characteristics of a thermal switch, 53, 423

Scaling down
 scaling down an inductive proximity sensor, 52, 114

Scanning force microscopy
 self-excited force-sensing microcantilevers with piezoelectric thin films for dynamic scanning force microscopy, 54, 477

Scanning micromirrors
 surface-micromachined mirrors for laser-beam positioning, 52, 76

Selective eutectic bonding
 a practical microgripper by fine alignment, eutectic bonding and SMA actuation, 54, 755

Self-excitation
 self-excited force-sensing microcantilevers with piezoelectric thin films for dynamic scanning force microscopy, 54, 477

Self-excited oscillators
 self-excited piezoelectric cantilever oscillators, 52, 41

Self-resonance
 optically excited self-resonant microbeams, 52, 92

Sensactors
 autocalibration of silicon Hall devices, 52, 203

Sensor-actuator systems
 gas bubbles electrolytically generated at microcavity electrodes used for the measurement of the dynamic surface tension in liquids, 52, 18

Sensors
 autocalibration of silicon Hall devices, 52, 203

on the mass sensitivity of acoustic-plate-mode sensors, 53, 243

sealed-cavity resonant microbeam accelerometer, 53, 249

instabilities in the piezoelectric properties of ferroelectric ceramics, 53, 353

silicon tube structures for a fluid-density sensor, 54, 558

Sensor systems
 a thermoelectric infrared radiation sensor with monolithically integrated amplifier stage and temperature sensor, 54, 601

Shadow masks
 high-resolution shadow-mask patterning in deep holes and its application to an electrical wafer feed-through, 54, 669

Shape memory alloys
 a practical microgripper by fine alignment, eutectic bonding and SMA actuation, 54, 755

Shape-memory effect
 sputter deposition of TiNi, TiNiPd and TiPd films displaying the two-way shape-memory effect, 53, 434

Shear-mode resonators
 extensions of the quartz-crystal-microbalance technique, 53, 371

Signal field
 local positioning system by means of enclosing signal field, 54, 457

Signal processing
 a miniaturized magnetic-field sensor system consisting of a planar fluxgate sensor and a CMOS readout circuitry, 54, 443

Silicon
 opto-mechanical accelerometer based on strain sensing by a Bragg grating in a planar waveguide, 52, 25

selective seeding of copper films on polyimide-patterned silicon substrate, using ion implantation, 52, 126

fabrication of a silicon micromachined capacitive microphone using a dry-etch process, 53, 237

microsensor for the preventive detection of water condensation: operating principle and interface electronics, 53, 304

pH-controlled TMAH etchants for silicon micromachining, 53, 335

silicon microfabricated horns for power ultrasonics, 54, 542

silicon tube structures for a fluid-density sensor, 54, 558

a fiber-optic silicon pressure sensor for ultra-thin catheters, 54, 622

fabrication and characterization of a silicon capacitive structure for simultaneous detection of acceleration and angular rate, 54, 646

highly reliable silicon micromachined physical sensors in mass production, 54, 714

boron etch-stop in TMAH solutions, 54, 728

a practical microgripper by fine alignment, eutectic bonding and SMA actuation, **54**, 755

optical properties of the integrated infrared sensor, **54**, 793

Silicon direct bonding

- a capacitive accelerometer using SDB-SOI structure, **53**, 267

Silicon fusion bonding

- silicon fusion bonding and deep reactive ion etching: a new technology for microstructures, **52**, 132

Silicon membranes

- an invasive catheter flow sensor with on-chip CMOS readout electronics for the on-line determination of blood flow, **54**, 563

Silicon micromachining

- fast three-dimensional laser micromachining of silicon for microsystems, **52**, 121
- analysis of a highly sensitive silicon gyroscope with cantilever beam as vibrating mass, **54**, 568

Silicon microphones

- on the mechanical behaviour of thin perforated plates and their application in silicon condenser microphones, **54**, 499

Silicon microstructures

- optically excited self-resonant microbeams, **52**, 92

Silicon nitride

- a pressure sensor based on a nitride membrane using single-crystalline piezoresistors, **54**, 488

Silicon-on-insulator (SOI)

- a capacitive accelerometer using SDB-SOI structure, **53**, 267
- minimum detectable signals of integrated magnetic sensors in bulk CMOS and SOI technologies for magnetic read heads, **54**, 636
- silicon-on-insulator (SOI) movable integrated optical waveguide technology, **54**, 679
- fabrication of SOI wafers with buried cavities using silicon fusion bonding and electrochemical etchback, **54**, 709

Silicon resonators

- an oscillator circuit for electrostatically driven silicon-based one-port resonators, **52**, 179

Silicon sensors

- new method for testing hermeticity of silicon sensor structures, **53**, 349
- an invasive catheter flow sensor with on-chip CMOS readout electronics for the on-line determination of blood flow, **54**, 563

Silicon wafer bonding

- fabrication of SOI wafers with buried cavities using silicon fusion bonding and electrochemical etchback, **54**, 709

Simulation

- humidity-dependent mechanical properties of polyimide films and their use for IC-compatible humidity sensors, **53**, 330
- simulation of a complex sensor system using coupled simulation programs, **54**, 632

Single-crystal silicon

- silicon fusion bonding and deep reactive ion etching: a new technology for microstructures, **52**, 132

Smart materials

- sputter deposition of TiNi, TiNiPd and TiPd films displaying the two-way shape-memory effect, **53**, 434

Smart sensors

- design of integrated thermal flow sensors using thermal sigma-delta modulation, **52**, 198
- microsensor for the preventive detection of water condensation: operating principle and interface electronics, **53**, 304

Sol-gel

- piezoelectric cantilever beams actuated by PZT sol-gel thin film, **54**, 530

Sputter deposition

- sputter deposition of TiNi, TiNiPd and TiPd films displaying the two-way shape-memory effect, **53**, 434

Squeeze-film damping

- dynamics of polysilicon parallel-plate electrostatic actuators, **52**, 216

Stability

- a millinewton microloading device, **52**, 65
- electrical levitation for micromotors, microgyroscopes and micro-accelerometers, **54**, 741

Standing waves

- extensions of the quartz-crystal-microbalance technique, **53**, 371

Static displacement

- self-excited force-sensing microcantilevers with piezoelectric thin films for dynamic scanning force microscopy, **54**, 477

Sticking

- polysilicon surface-modification technique to reduce sticking of microstructures, **52**, 145
- a novel method to avoid sticking of surface-micromachined structures, **54**, 659

Storage phosphor

- a novel image storage sensor using photostimulated luminescence in SrS:Eu,Sm phosphor for electromagnetic waves such as X-rays, UV-rays and visible light, **53**, 223

Strain monitoring

- self-tuning inductive powering for implantable telemetric monitoring systems, **52**, 1

Stress

- a millinewton microloading device, **52**, 65

Stress gradients

- stress-profile characterization and test-structure analysis of single and double ion-implanted LPCVD polycrystalline silicon, **54**, 718

Surface acoustic waves

- a new sensor principle based on the reflection of surface acoustic waves, **54**, 618

Surface force

- highly reliable silicon micromachined physical sensors in mass production, **54**, 714

Surface micromachining

- integration of surface-micromachined polysilicon mirrors and a standard CMOS process, **52**, 140
- polysilicon surface-modification technique to reduce sticking of microstructures, **52**, 145
- dynamics of polysilicon parallel-plate electrostatic actuators, **52**, 216
- an integrated force-balanced capacitive accelerometer for low-g applications, **54**, 472
- an accelerometer made in a two-layer surface-micromachining technology, **54**, 651
- a novel method to avoid sticking of surface-micromachined structures, **54**, 659
- thick polycrystalline silicon for surface-micromechanical applications: deposition, structuring and mechanical characterization, **54**, 674
- fabrication of SOI wafers with buried cavities using silicon fusion bonding and electrochemical etchback, **54**, 709
- stress-profile characterization and test-structure analysis of single and double ion-implanted LPCVD polycrystalline silicon, **54**, 718

Surface modification

- polysilicon surface-modification technique to reduce sticking of microstructures, **52**, 145

Surface plasmon resonance

- monochromatic excitation of surface plasmon resonance in an optical-fibre refractive-index sensor, **54**, 589

Surface tension

- a planar microfabricated fluid filter, **54**, 704

Surfactants

- gas bubbles electrolytically generated at microcavity electrodes used for the measurement of the dynamic surface tension in liquids, **52**, 18

Swelling

- humidity-dependent mechanical properties of polyimide films and their use for IC-compatible humidity sensors, **53**, 330

Switched-capacitors
a reflected-light receiver with 2 nA sensitivity using CDS and separate low-pass filtering of the input signal at each clock-phase, **52**, 175

Switching
micromachined 1×2 optical-fiber switch, **53**, 311

System integration
integration of surface-micromachined polysilicon mirrors and a standard CMOS process, **52**, 140

System simulation
static and dynamic flow simulation of a KOH-etched microvalve using the finite-element method, **53**, 379

Tactile
CMOS-compatible traction stress sensor for use in high-resolution tactile imaging, **54**, 511

Tactile microgrippers
tactile microgripper for automated handling of microparts, **53**, 410

Telemetry
linking sensors with telemetry: impact on the system design, **52**, 169

Temperature compensation
a sensitive Pirani vacuum sensor and the electrothermal SPICE modelling, **53**, 273

Temperature control
thermal analysis and design of a micro-hotplate for integrated gas-sensor applications, **54**, 482

Tetramethyl ammonium hydroxide (TMAH)
diode-based thermal r.m.s. converter with on-chip circuitry fabricated using CMOS technology, **52**, 33
pH-controlled TMAH etchants for silicon micromachining, **53**, 335
boron etch-stop in TMAH solutions, **54**, 728

Theory
on the measurement of thin liquid overayers with the quartz-crystal microbalance, **54**, 448

Thermal actuators
micromachined 1×2 optical-fiber switch, **53**, 311

Thermal bimorph actuators
tactile microgripper for automated handling of microparts, **53**, 410

Thermal comfort
silicon-based thermal comfort sensing device, **54**, 468

Thermal comfort sensing
silicon-based thermal comfort sensing device, **54**, 468

Thermal conductance
thin-film boron-doped polycrystalline silicon_{70%}-germanium_{30%} for thermopiles, **53**, 325

Thermal environment
silicon-based thermal comfort sensing device, **54**, 468

Thermal isolation
diode-based thermal r.m.s. converter with on-chip circuitry fabricated using CMOS technology, **52**, 33

Thermal sensors
design of integrated thermal flow sensors using thermal sigma-delta modulation, **52**, 198

Thermoelectric
thin-film boron-doped polycrystalline silicon_{70%}-germanium_{30%} for thermopiles, **53**, 325

Thermoelectric effects
microsensor for the preventive detection of water condensation: operating principle and interface electronics, **53**, 304

Thermopiles
thin-film boron-doped polycrystalline silicon_{70%}-germanium_{30%} for thermopiles, **53**, 325
a thermoelectric infrared radiation sensor with monolithically integrated amplifier stage and temperature sensor, **54**, 601

Thick-film sensors
preparation and properties of new thick-film magnetoresistive materials, **52**, 161

Thick layers
microcoils fabricated by UV depth lithography and galvanoplating, **54**, 663

Thick photoresist
design and fabrication of micromirror supported by electroplated nickel posts, **54**, 464

Thin-film gas sensors
thermal analysis and design of a micro-hotplate for integrated gas-sensor applications, **54**, 482

Thin films
piezoelectric actuation of PZT thin-film diaphragms at static and resonant conditions, **53**, 398

Thin-film sensors
a miniaturized magnetic-field sensor system consisting of a planar fluxgate sensor and a CMOS readout circuitry, **54**, 443

Thin liquid films
on the measurement of thin liquid overayers with the quartz-crystal microbalance, **54**, 448

Three-axis tactile sensors
silicon three-axis tactile sensor, **54**, 505

Three-dimensional microstructures
fast three-dimensional laser micromachining of silicon for microsystems, **52**, 121

Ti(Ni,Pd) films
sputter deposition of TiNi, TiNiPd and TiPd films displaying the two-way shape-memory effect, **53**, 434

Torsional resonators
quality factor of torsional resonators in the low-pressure region, **53**, 299

Traction
CMOS-compatible traction stress sensor for use in high-resolution tactile imaging, **54**, 511

Triaxial
CMOS-compatible traction stress sensor for use in high-resolution tactile imaging, **54**, 511

Turbulence
an integrated pressure-flow sensor for correlation measurements in turbulent gas flows, **52**, 51

Ultrasonic actuators
piezoelectric actuation of PZT thin-film diaphragms at static and resonant conditions, **53**, 398

Ultrasonic transducers
electrostatically excited diaphragm driven as a loudspeaker, **52**, 211

Ultrasound
a non-contacting sensor system for respiratory air flow detection, **52**, 81

UV patterning
microcoils fabricated by UV depth lithography and galvanoplating, **54**, 663

UV-rays
a novel image storage sensor using photostimulated luminescence in SrS:Eu,Sm phosphor for electromagnetic waves such as X-rays, UV-rays and visible light, **53**, 223

Variation
characterizing deflectable microstructures via a high-resolution laser-based measurement system, **52**, 12

VDF/TrFE copolymer
a 3×1 integrated pyroelectric sensor based on VDF/TrFE copolymer, **52**, 103

Vector magnetometers
2D magnetodiode sensors based on SOS technology, **54**, 584

Vibration
analysis of a micro-electric generator for microsystems, **52**, 8

Visible light

a novel image storage sensor using photostimulated luminescence in SrS:Eu,Sm phosphor for electromagnetic waves such as X-rays, UV-rays and visible light, **53**, 223

Wafer-bonding

design of a silicon microphone with differential read-out of a sealed double parallel-plate capacitor, **53**, 232

Wet-etch

boron etch-stop in TMAH solutions, **54**, 728

Wire electro-discharge machining

design and fabrication of a gripping tool for micromanipulation, **53**, 428

X-rays

a novel image storage sensor using photostimulated luminescence in SrS:Eu,Sm phosphor for electromagnetic waves such as X-rays, UV-rays and visible light, **53**, 223

Young's modulus

determination of the mechanical properties of microstructures, **54**, 750

